

# PATENT SPECIFICATION

NO DRAWINGS

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## COMPLETE SPECIFICATION

### Silicone Wax Cosmetic Compositions

We DOW CORNING CORPORATION, of Midland, Michigan, United States of America, a corporation organised under the laws of the State of Michigan, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to an improved cosmetic composition which is particularly concerned with a composition suitable for a lip colouring composition comprising a silicone wax.

Humans have been beautifying themselves down through the ages with a variety of concoctions that have become known as cosmetics. One of the most widely used and accepted cosmetics is the lip colouring composition. This lip colouring composition can come in many forms the most popular being a lipstick. Lipstick is one of the few indispensable cosmetics in a woman's handbag or on her dressing table. The properties of the lipstick are therefore important. In order that a lipstick be acceptable, the composition must come in all latest colours. Providing various colours can be a problem. In the manufacture of some formulations, the compositions will not accept the colouring agents and readily become streaked, leach-out and/or become completely heterogenous and will not formulate. The stick must be clean, smooth have a lustrous surface of the proper colour and an attractive odour. The moulded product must be free from discolouration, specks of grit, pinholes or other imperfections. The surface colour of the lipstick should be like the colour of the film on the lips. The stick must not be dry or brittle nor should oil droplets form on its surface. The lipstick must have a high enough melting point to be sufficiently hard and strong to enable it to be massed into stick form and also to withstand normal use without breaking. However, it must be soft enough to be easily applied to the lips, yet still possessing sufficient body not to melt and flow in a handbag. Application to the lips should be easy and smooth, with little drag and no excess greasiness.

The film on the lips must have a series of desirable subjective qualities along with measurable properties. The film should be tasteless, free from tackiness and have an emmollient feel without imparting a sensation of dryness. The colour of the film when first applied should be similar in colour as it is after wear. The film should not smear or creep into lip folds. The film must be durable enough so that reapplication is not required every 2 or 3 hours. The film, no matter how thin, must to some extent be impervious to mild abrasion such as that encountered during eating and drinking.

From the foregoing description of some of the properties of a lipstick or other lip colouring compositions it is apparent that formulating such a composition is extremely complex. Indeed lip colouring compositions are complex mixtures of ingredients having a wide variety of properties. Each of the ingredients is intended to impart some desirable property and as a result many materials will provide one desirable property and at the same time introduce an undesirable property which in turn require an additional ingredient to counteract the undesirable property introduced.

This invention provides a cosmetic composition suitable for colouring the lips of

humans, comprising a cosmetic solvent, a colouring agent and a wax of which at least 15 weight per cent is a silicone wax selected from

(A) organosilicon block co-polymers consisting essentially of

(1) 5 to 94 mol per cent of blocks of polysiloxanes of the general formula

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in which the sum of  $x+y+z$  has an average value of from 6 to 150, and  $y$  and  $z$  each have a value of up to 5 mol per cent of the sum of  $x+y+z$ , and

(2) 6 to 95 mol per cent of blocks of the average general formula  $R_nSiO_{4-\frac{m+n}{2}}$  in

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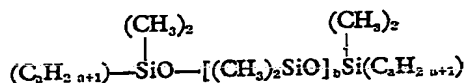
which  $R$  is an alkyl radical containing from 16 to 26 carbon atoms,  $m$  has a value of up to 0.25,  $n$  has a value of from 0.075 to 1.05 and the sum of  $m+n$  has a value of from 0.95 to 1.05

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(B) hydrocarbon-silicone co-polymers consisting essentially of co-polymers selected from

(3) compounds having an average general formula

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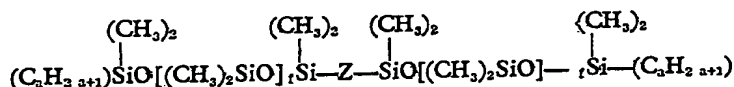
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in which  $a$  has an average value from 18 to 75 inclusive,  $b$  has an average value from 0 to 48 inclusive and there being at least 3 carbon atoms calculated on the total number of carbon atoms in the  $C_6H_{2a+1}$  radicals per silicon atom calculated on the total number of silicon atoms per molecule, and

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(4) compounds having an average general formula of

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in which  $a$  is defined above,  $f$  has an average value from 0 to 10 inclusive, and  $Z$  is a divalent hydrocarbon radical consisting essentially of  $-CH_2-$  groups and having from 1 to 100 inclusive carbon atoms,

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(C) silicone-carnauba wax co-polymers consisting essentially of a silicone portion bonded to a carnauba wax portion through an organic radical attached to a silicon atom through a silicon-carbon bond, said organic radical linking the silicone portion and the carnauba wax portion predominantly by either linkages, from 40 to 95 inclusive weight per cent of said copolymer constituting the carnauba wax portion, and

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(D) siloxane co-polymers consisting essentially of

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(5) siloxane units of the formula  $(CH_3)_3SiO_{1.5}$

(6) siloxane units of the general formula  $(CH_3)_cSiO_{4-\frac{c}{2}}$  in which  $c$  is 0, 1 or 2 and

in the co-polymer has an average value from 1.98 to 2.00 inclusive and

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(7) siloxane units of the general formula  $R_dSiO_{4-\frac{c+d}{2}}$  in which  $R$  is a monovalent

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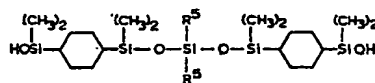
hydrocarbon radical containing from 16 to 26 inclusive carbon atoms,  $c$  and  $d$  are each 0, 1 or 2 and in the co-polymer have an average value from 0.95 to 1.05 inclusive, and the sum of  $c+d$  has an average value from 1.98 to 2.00 inclusive, there being an average of up to 2.05 inclusive units of (5) per molecule and there being an average of at least one unit of (7) per 15 units of (6), and

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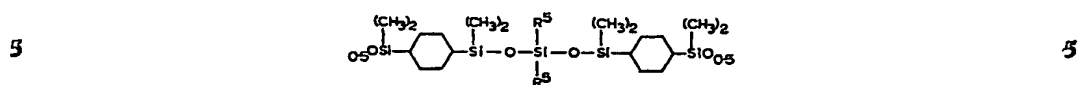
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(E) silphenylene co-polymers selected from

(8) compounds of the general formula



in which R<sup>5</sup> is a methyl, phenyl, vinyl or trifluoropropyl radical, and  
(9) polymers consisting essentially of from 5 to 95 mol per cent of units of the general formula



in which R<sup>5</sup> is defined above and from 5 to 95 mol per cent of units of the general formula RSiO<sub>1.5</sub> in which R is defined above.

The organosilicon block co-polymers (A) are silicone waxes and consist essentially of two types of blocks. The diorganopolysiloxane blocks, (1), are composed essentially of dimethylsiloxane units and have an average of from 6 to 150 silicon atoms per block. Organosilicon block co-polymers, (A), containing diorganopolysiloxane blocks (1) with an average of less than 6 silicon atoms per block do not produce waxes which are compatible with silicone liquids. Organosilicon block co-polymers, (A), containing diorganopolysiloxane blocks (1) with an average of more than 150 silicon atoms per block provide products which do not have wax properties. The most preferred average length of the diorganopolysiloxane blocks is from 15 to 100. The diorganopolysiloxane blocks can tolerate up to 5 mol per cent of either phenylmethylsiloxane units or monomethylsiloxane units. More than 5 mol per cent of either of the above units reduces the melting point of the wax below an operable level or interferes with the compatibility of silicon liquid.

Organosilicon blocks (2) are essentially mono-organosilicon blocks of the average  $(\text{C}_6\text{H}_5)_m$  general formula  $\text{R}_n\text{SiO}_{1.5-m-n}$  in which R is an alkyl radical containing from 16 to 26

carbon atoms, m has a value up to 0.25, n has a value from 0.75 to 1.05 and the sum of m+n has a value from 0.95 to 1.05. Examples of alkyl radicals, R, which are operable are hexadecyl, heptadecyl, octadecyl, nonadecyl, eicosyl, heneicosyl, docosyl, tricosyl, tetracosyl, pentacosyl and hexacosyl. The alkyl radicals can be either straight chained or branched. The preferred alkyl radicals, especially for the preparation of organosilicon block co-polymers for preparing lip colouring compositions are those having from 18 to 26 carbon atoms per radical.

The organosilicon blocks, (2), can have up to 0.25 phenyl radical per silicon atom, and preferably (2) contains up to 0.10 phenyl radical per silicon atom. The phenyl radicals can be present as monophenylsiloxane units, diphenylsiloxane units or units of the general formula R(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>SiO. The phenyl radicals are present preferably as monophenylsiloxane units. Units of the diorganosiloxane type such as (C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>SiO, R(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>SiO and R<sub>2</sub>SiO can be present up to 5 mol per cent of the total siloxane units of (2). More than 5 mol per cent of diorganosiloxane units lower the melting point below an operable range.

The organosilicon blocks, (2), can have up to 5 mol per cent of silicone units of the formula SiO<sub>2</sub> calculated on the total mol per cent of siloxane units in (2). Up to 5 mol per cent of SiO<sub>2</sub> units aids in raising the melting point of the silicone wax and adds strength to the silicone wax. More than 5 mol per cent of SiO<sub>2</sub> units causes the silicone wax to become brittle.

The organosilicon blocks, (2), contain from 75 to 100 mol per cent of mono-alkylsiloxane units based on the total number of units present in (2). The most preferred amount of monoalkylsiloxane units is from 90 to 100 mol per cent.

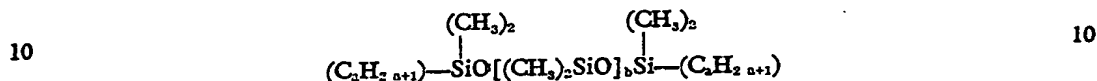
The siloxane units in the siloxane blocks in (1) can be present in amounts from 5 to 94 mol per cent calculated on the total mol per cent of siloxane units in (1) and (2). The most preferred amount of siloxane units (1) is from 20 to 90 mol per cent. The amount of siloxane units in the blocks of (2) can be from 6 to 95 mol per cent calculated on the total mol per cent of siloxane units in (1) and (2). Co-polymers outside the limits of (1) and (2), as stated above, do not produce the desired waxes.

The organosilicon block co-polymer (A) is essentially the only component of the

silicone wax, but because the starting alkyl chlorosilanes are extremely difficult to prepare in pure form, other materials may be present such as alkanes comprising from 16 to 26 carbon atoms. These extra ingredients are not detrimental to the properties of the silicone waxes if the amounts present are relatively small.

The organosilicon block co-polymer (A) is a silicone wax which is insoluble in water, alcohol, and hot fats and oils. It is miscible with silicone liquids. It has a relatively high melting point and has sufficient strength to be moulded and formed.

The hydrocarbon-silicone co-polymer (B) is a wax and is essentially of two types. The first type is a compound (3) having an average formula



in which a has an average value from 18 to 75 inclusive. The value of a includes not only aliphatic radicals bonded directly to a silicon atom but also includes any aliphatic radicals which are not attached to a silicon atom. The aliphatic radicals can be for example any alkyl radical having at least 18 carbon atoms and no more than 75 carbon atoms. These radicals can be either straight chained or branched. The aliphatic radicals,  $\text{C}_a\text{H}_{2a+1}$ , can also include alkanes which are the precursor of any of the above alkyl radicals. These alkanes can be present and are unattached to the silicon atoms. These alkanes should not be present in such amounts so as to provide for less than 18 carbon atoms per end silicon atom or more than 75 carbon atoms per end silicon atom. Also the alkanes should not contain less than 18 carbon atoms per molecule. It is understood that there are two alkyl radicals per compound, one attached to each of the terminal silicon atoms. The alkanes can be present because the starting ingredients are difficult to purify and even after reaction producing the above compounds their removal is very difficult therefore as their presence is not detrimental to the final properties of the wax if the limits set forth are maintained, the extra cost involved in purification is an added unnecessary expense. Likewise all the aliphatic radicals and molecules need not be completely saturated, a small amount of carbon-carbon double bonds can be present such as not more than 5 per cent of the aliphatic radicals and molecules contain double bonds.

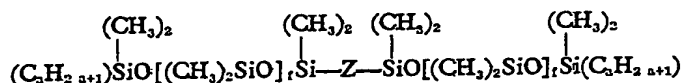
If there are fewer carbon atoms in  $\text{C}_a\text{H}_{2a+1}$  than 18, the hydrocarbon-silicone co-polymers of the first type (3) are not satisfactory waxes for the preparation of cosmetic compositions of this invention. If there are more than 75 carbon atoms in  $\text{C}_a\text{H}_{2a+1}$ , the hydrocarbon-silicone co-polymers of the first type (3) contain excessive amounts of alkanes and are not satisfactory for this invention.

The silicon-containing portion of the compounds (3) can contain from 2 to 50 silicon atoms per molecule thus the value of b can be from 0 to 48 inclusive. If there are more than 50 silicon atoms per molecule, the waxes have too low a melting point to be satisfactory for this invention.

Another requirement for the compounds (3) is that they must contain at least 3 carbon atoms per silicon atom. The carbon atoms here counted are only those which are included in the  $\text{C}_a\text{H}_{2a+1}$  radicals as described above. The silicon atoms are the total number of silicon atoms per molecule. When there are less than 3 carbon atoms per silicon atom, the waxes have too low a melting point for the preparation of the cosmetic compositions of this invention.

The preferred hydrocarbonsilicone co-polymers (3) are those in which a has an average value from 22 to 50 inclusive, b has an average value from 2 to 30 inclusive and there are at least 5 carbon atoms based on the total number of carbon atoms in the  $\text{C}_a\text{H}_{2a+1}$  radicals per silicon atom based on the total number of silicon atoms per molecule.

The second type of hydrocarbon silicone co-polymer (B) is a compound (4) having an average formula



in which a is defined above and f has an average value from 0 to 10 inclusive, preferably f has an average value from 0 to 6 inclusive. The divalent hydrocarbon radical, Z consists essentially of  $-\text{CH}_2-$  groups and has from 1 to 10 carbon atoms. Thus, Z can be for example, methylene ethylene, propylene, butylene, pentylene, hexy-

lene, heptylene, octylene, nonylene and decylene. Although it is preferred that Z is essentially a straight chain, branched chains in small amounts can be present.

The silicone-carnauba wax co-polymers (C) are waxes and consist essentially of a silicone portion bonded to a carnauba wax portion through an organic radical attached to a silicone atom through a silicone-carbon bond, said organic radical linking the silicone portion and the carnauba wax portion predominantly by ether linkages, 40 to 95 inclusive weight per cent of said copolymer constituting the carnauba wax portion. The preferred silicone-carnauba wax co-polymers (c) are those having from 60 to 85 weight per cent carnauba wax portion.

The silicone portion consists essentially of at least one silicon atom to which is bonded through a silicon-carbon bond at least one divalent organic radical consisting essentially of carbon atoms, hydrogen atoms and oxygen atoms. The organic radical is also bonded to a carnauba wax portion predominantly through an ether linkage. Any remaining valencies of the silicon atom are satisfied by radicals such as monovalent hydrocarbon radicals, such as methyl, ethyl, propyl, butyl, hexyl, cyclohexyl, cyclopentyl, phenyl, tolyl, xenyl, naphthyl, octadecyl, tertiary butyl and ethylphenyl and beta-phenylethyl radicals; monovalent halogenated hydrocarbon radicals, such as chloromethyl, chloropropyl, trifluoropropyl, pentafluoropentyl, chlorophenyl, bromobutyl, fluoroethyl, bromophenyl and chloropentyl radicals; monovalent hydrocarbonoxy radicals such as methoxy, ethoxy, propoxy, butoxy, phenoxy, hexoxy, beta-methoxyethoxy, beta-ethoxyethoxy, gamma-methoxypropoxy and beta-phenoxyethoxy radicals; monovalent halogenated hydrocarbonoxy radicals, such as chloroethoxy, trifluoropropoxy, bromobutoxy, chlorophenoxy and pentafluoroheptoxy radicals, hydroxyl radicals; hydrogen atoms; and divalent oxygen atoms. The divalent oxygen atoms are bonded to another silicon atom forming a silicon-oxygen-silicon bond. The other silicon atom has its valencies satisfied by any of the radicals described above.

The silicone-carnauba wax co-polymers (C) are described and claimed in our co-pending Application No. 8710/66 (Serial No. 1140537) of even date herewith.

A siloxane co-polymer (D) of this invention is a wax and consists essentially of  $(\text{CH}_3)_3\text{SiO}_{0.5}$  units (5),  $(\text{CH}_3)_e\text{SiO}_{1-e}$  units (6) in which e has an average value from

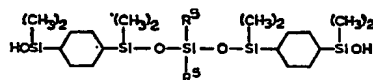


1.98 to 2.00 inclusive and  $\text{R}_c\text{SiO}_{1-c-d}$  units (7) in which R, c and d are as herein-

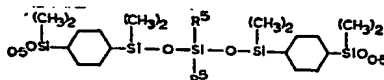
before defined. The trimethylsiloxane units (5) are present in an amount up to an average of 2.05 units per molecule and there is present an average of at least one unit of (7) for each 15 units of (6). When there is less than one unit of (7) for each 15 units of (6), the co-polymer has a melting point which is too low for use in this invention. The upper limit is when there are no units of (6) present. The alkyl radicals, R have previously been described herein. The above formulae permit a small amount of monomethyl siloxane units and/or a small amount of  $\text{RSiO}_{1.5}$  units. Other units can also be present, so long as they do not interfere with the properties of this co-polymer. These other siloxane units can be units containing silicon-bonded hydrogen, lower alkyl radicals and phenyl radicals. Co-polymer (D) can also contain unreacted alkane molecules.

Preferably, the siloxane co-polymers (D) contain at least one unit of (7) for each 5 units of (6). Also preferred siloxane co-polymers (D) are those having R radicals comprising at least 20 carbon atoms per radical.

The silphenylene co-polymers (E) are silicone waxes and can be either compounds or polymers. The silphenylene compounds (8) are of the general formula.



in which  $\text{R}^5$  is a methyl, phenyl, vinyl or trifluoropropyl radical. The silphenylene polymers (9) essentially contain from 5 to 95 mol per cent of silphenylene-siloxane units of the general formula



defined above and from 5 to 95 mol per cent of units of the general formula  $\text{RSiO}_{1.5}$

in which R is as defined above. The polymers preferably contain from 15 to 80 mol per cent of the silphenylene-siloxane units.

The compositions of this invention are improved cosmetic compositions, particularly improved lip colouring compositions, such as lipsticks. The cosmetic compositions which comprise a wax, a solvent and a colouring agent are improved compositions in that for at least a portion of the wax, a silicone wax is substituted. The cosmetic compositions containing a silicone wax have improved viscosity stability and have a sharper melting point. Thus the compositions retain their form and properties almost to the melting point of the wax. The silicone waxes are essentially insoluble in water, ethanol and organic fats and oils, particularly those which are edible. The cosmetic compositions are improved over those compositions which contain no silicone wax in that the cosmetic compositions containing a silicone wax retain essentially all the properties of the silicone wax over a wider temperature range, are less soluble in organic solvents broadly and have good shelf stability.

The compositions of this invention are suitable for the preparation of any cosmetic such as a lipstick, a rouge, a chapstick, eyebrow stick, a lip colouring composition such as in liquid form, mascara, epilating wax, solid perfume and styptic crayon. The compositions of this invention are particularly suitable for making lipstick compositions. The properties of a lipstick comprising a wax of which at least a portion is a silicone wax, a solvent and a colouring agent are such that a superior lipstick can be formed. Although the following description is directed primarily to a lip colouring composition, the present invention should not be considered as excluding other related cosmetic compositions that have a wax base.

Lip colouring compositions comprise from 2 to 70 inclusive weight per cent of a wax of which 15 weight per cent is a silicone wax as specified above, from 10 to 50 inclusive weight per cent of a solvent and from 2 to 25 inclusive weight per cent of a colouring agent which includes pigments, dyes and lakes. Preferably, the lip colouring compositions comprise 20 to 60 inclusive weight per cent wax of which at least 15 weight per cent is a silicone wax as specified above.

The waxes can be, for example, any silicone wax such as the silicone co-polymers described above, and any organic wax suitable for cosmetic compositions such as beeswax (*apis mellifera*), paraffin wax, carnauba wax (*corypha cerifera*), ceresine, cocoa butter (*theobromacacao*), ozokerite, candelilla (*euphorbia cerifera*), spermaceti (*cetaceum*), hydrogenated vegetable oils such as hardened castor oil and hydrogenated palm kernel oil, montan, microcrystalline waxes, lanolin alcohols and waxes derived from the Fischer-Tropsch synthesis. Mixtures of waxes can be used in this invention. The improvements are observed in the cosmetic compositions when 15 weight per cent of the wax mixture is a silicone wax, as previously described. Preferably, the wax mixtures contain at least 25 weight per cent of silicone wax. Excellent results are obtained when the wax portion is all silicone.

The solvents used in this invention are cosmetic solvents and include siloxane liquids, which preferably has a viscosity of at least 5 centistokes at 25° C, such as dimethylpolysiloxane, diethylpolysiloxane, ethylmethylpolysiloxane, phenylmethylpolysiloxane and co-polymers of dimethylsiloxane and phenylmethylsiloxane and organic solvents such as castor oil, liquid paraffin fractions, mineral oil, tetrahydrofurfuryl alcohol, organic esters of tetrahydrofurfuryl alcohol, isopropyl myristate, oleyl alcohol, polyethylene glycols, polypropylene glycols, mixed polyethylene and polypropylene glycols, organic esters of polypropylene and polyethylene glycols, glyceryl monostearate, butyl stearate, diethylsebacate, hexaethylene glycol, phenylethyl alcohol, diacetone alcohol, benzyl alcohol, tetraethylene glycol, N-hydroxyethyl acetamide, N-methylacetamide, N,N-dimethylacetamide, hydroxycitronellal, citral, triethylene glycol, acetone, diphenyl ketone, diethylene glycol, terpineol, ethylene ricinoleate, cyclohexanol, ethyl ricinoleate acetate, ethylene glycol lauryl alcohol, myristyl alcohol, stearyl alcohol, glycol oleate acetate, cocoa butter, lauric acid, myristic acid, cetyl acetate, ethyl oleate, ethyl stearate, glycol oleate, cetyl alcohol, lanolin, lanolin absorption bases, petroleum jelly, isopropyl palmitate, lecithin, lard (purified, deodorised and decolourised), diethylene glycol monostearate, propylene glycol monostearate, vegetable oils, myristol lactate, sesame oil, olive oil and propylene glycol monolaurate. Although many of the above cosmetic solvents have properties over and above the solvent property, these cosmetic solvents are included with the solvent class. Each of the particular solvents have properties which are well known to those skilled in the art of cosmetics such as cetyl alcohol, lanolin and cocoa butter have an emollient property.

The colouring agents include dyes, pigments both inorganic and organic and lakes. Dyes include the fluoran type dyes such as the fluoresceins and halogenated fluoresceins and their alkali metal salts and the xanthene type dyes including the tri-

- phenyl methane type dyes. Examples of dyes are 4,5-dibromo-3,6-fluorandiol (D & C Orange No. 5); 2,4,5,7 - tetrabromo - 12,13,14,15 - tetrachloro - 3,6 - fluoroandiol (D & C Red No. 27); 4,5 - dichloro - 3,6 - fluoroandiol (D & C Orange No. 8); 2,4,5,7 - tetrabromo - 3,6 - fluoroandiol (D & C Red No. 21); 3 - ethochloride of 9 - ortho - carboxyphenyl - 6 - diethylamino - 3 - ethyl - imino - 3 - isoxanthene (D & C Red No. 19); 3 - ethoacetate of 9 - orthocarboxyphenyl - 6 - diethylamino - 3 - ethylimino - 3 - isoxanthene (D & C Red No. 20); the disodium salt of 9 - orthocarboxyphenyl - 6 - hydroxyl - 4,5 - diiodo - 3 - isoxanthone (D & C Orange No. 11); the sodium salt of tetra-iodo-fluorescein (FD & C Red No. 3); disodium dibromofluorescein (D & C Orange No. 6); potassium dibromofluorescein (D & C Orange No. 7); dichlorofluorescein (D & C Orange No. 8); disodium dichlorofluorescein (D & C Orange No. 9); diiodofluorescein (D & C Orange No. 10); erythrosine yellowish K (D & C Orange No. 12); erythrosine yellowish NH (D & C Orange No. 13); 4,5,15 - tribromo - 2,7 - dicarboxy - 3,6 - fluorandiol (D & C Orange No. 14); dibromodiodofluorescein (D & C Orange No. 16); amaranth, purified cosine y, tartarazine, yellow ochre, Rhodamine beta-acetate (D & C Red No. 20); tetrachlorofluorescein (D & C Red No. 24); sodium tetrachlorofluorescein (D & C Red No. 25); potassium tetrachlorofluorescein (D & C Red No. 26); uranine (D & C Yellow No. 8); potassium salt of uranine (D & C Yellow No. 9); the sodium salt of pseudocumylazo-beta-naphthol-3,6-disulphonic acid (FD & C Red No. 1); the sodium salt of 4-sulpho-alpha-naphthylazo-beta-naphthol-3,6-disulphonic acid (FD & C Red No. 2); the sodium salt of 2,4-dinitro-alpha naphthol-7-sulphonic acid (FD & C Yellow No. 1); carmine and carmoisine.
- Examples of pigments are aluminium oxide, titanium oxide, zinc oxide, barium sulphate, iron oxide, carbon, talc, kaolin, clay and bentonite.
- Other ingredients can also be present, but are not required to provide the improved cosmetic composition of this invention. Flavours and/or perfumes can be added such as strawberry, raspberry, vanillin, orange blossom, jasmine, rose, rose otto, heliotropin, linalyl cinnamate, benzyl propionate, anisic aldehyde and essential perfume oils. The flavour and perfumes are usually added in amounts of up to 2 weight per cent.
- Any of the ingredients conventionally used in the preparation of wax base cosmetic compositions such as lipsticks, lip rouge and eyebrow pencil, can be used in this invention. The silicone waxes have a particular advantage in that they can be formulated into excellent cosmetics without using a large number of ingredients. Cosmetic compositions such as lipsticks can be prepared from as few as four ingredients and have excellent properties. A lipstick can be prepared from a silicone wax, a silicone liquid, a colouring agent and a solvent with binding properties such as cetyl alcohol. Other ingredients can be used and those skilled in the art can readily include such other ingredients as may be desirable to provide a cosmetic composition with different properties such as a liquid lip rouge may be desired. In preparing a liquid lip rouge, the binding agent can be left out or some additional liquifying solvents can be added.
- The cosmetic compositions can be prepared by conventional methods which are well known in the art. The ingredients can be mixed thoroughly, preferably all the ingredients which can be liquified are in the liquid state, such as the waxes. The pigments are added in a finely divided state. The ingredients can be milled together, or blended in any conventional manner.
- The cosmetic compositions are insoluble in water and ethanol. The silicone waxes are also insoluble in organic fats and oils, particularly the edible organic fats and oils. The cosmetic compositions, particularly the lipsticks, retain essentially the same melting point as the melting point of the silicone wax. This is a unique property in that most waxes when used in a mixture will have a much lower melting point than the melting point of the wax used.
- The preferred silicone co-polymers used in this invention are the organosilicon block co-polymers (A) the hydrocarbonsilicone co-polymers (B) and the silphenylene co-polymers (E). The most preferred silicone co-polymer is the organosilicon block co-polymer (A).
- According to one embodiment of the invention a lip colouring composition is provided comprising 2 to 50 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl and phenyl radicals, 2 to 50 weight per cent of another cosmetic solvent, 2 to 25 weight per cent of a colouring agent and 2 to 70 weight per cent of a wax of which at least 15 weight per cent is a silicone was as defined in (A) to (E) above. Preferably

the liquid diorganopolysiloxane is present in an amount of from 8 to 40 weight per cent.

5 According to a second embodiment of the invention a lip colouring composition is provided comprising 2 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl, and phenyl radicals, weight per cent of cetyl alcohol (also a cosmetic solvent), 2 to 40 weight per cent of another cosmetic solvent, 2 to 20 weight per cent of a colouring agent, and 2 to 70 weight per cent of a wax of which at least 25 weight per cent is a silicone wax as defined in (A) to (E) above. 5

10 According to a third embodiment of the invention a lip colouring composition is provided comprising 2 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from, methyl, ethyl, propyl and phenyl radicals, 2 to 25 weight per cent of isopropyl myristate (also a cosmetic solvent), 2 to 40 weight per cent of another cosmetic solvent, 2 to 20 weight per cent of a colouring agent and 2 to 70 weight per cent of a wax of which at least 25 weight per cent is a silicone wax as defined in (A) to (E) above. 10 15

In each of these embodiments the liquid diorganopolysiloxane is preferably a dimethylpolysiloxane liquid.

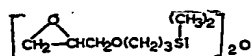
20 According to a further embodiment of the invention a lipstick is provided comprising 8 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl and phenyl radicals 1 to 25 weight per cent of another cosmetic solvent, 2 to 20 weight per cent of a colouring agent, and 20 to 60 weight percent of a silicone wax as defined in (A) to (E) above. Preferably the liquid diorganopolysiloxane is a dimethylpolysiloxane liquid and/or a phenylmethylsiloxane liquid. 20 25

The following examples illustrate the invention.

#### EXAMPLE 1.

30 A mixture of 100 g. of carnauba wax, 200 g. of isopropanol, 100 g. of toluene, and 100 g. of a solution of 10 weight per cent sodium hydroxide in water was refluxed for 6 hours to saponify the carnauba wax. The hot reaction mixture was then acidified with aqueous sulphuric acid and thereafter washed twice with boiling water. The organic layer was stripped to 150° C at 1 mm Hg. A smooth, hard wax melting at 75° to 76° C. was recovered. 30

35 A mixture of 10 g. of the above hydrolysed carnauba wax, 10 g. of ethylene glycol dimethylether and 5 drops of  $\text{BF}_3 \cdot \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  was heated to 100° C. and then 6 g. of 35



were added. The mixture was then stripped to 120° C. at 1 mm Hg. The product, a silicone-carnauba wax, was a smooth wax melting at about 80° C.

40 A lipstick was prepared by melting and mixing 3.5 g. of the above silicone-carnauba co-polymer, 2.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 centistokes at 25° C., 0.6 g. of cetyl alcohol, 1.0 g. of isopropyl myristate and 1.0 g. D & C Red No. 7, until a homogeneous mixture resulted. The melted mixture was then poured into a mould and cooled. The lipstick marked excellently. 40

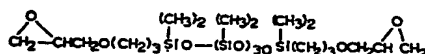
45 A lipstick was prepared by mixing and melting the following ingredients until a homogeneous mixture was produced: 3.0 g. of the above silicone-carnauba co-polymer, 3.0 g. of a liquid phenylmethylpolysiloxane having a viscosity of 50 centistokes at 25° C., 0.6 g. of cetyl alcohol, and 1.0 g. of D & C Red No. 7. The molten mixture was poured into a mould and cooled. The lipstick was creamy and marked excellently. 45

50 A creamy lipstick was prepared by the above procedure and formulated with 3.0 g. of the above silicone-carnauba co-polymer, 3.0 g. of a liquid phenylmethylpolysiloxane having a viscosity of 50 cs. at 25° C., 0.5 g. of stearic acid and 1.0 g. of D & C Red No. 7. 50

#### EXAMPLE 2

55 A solution of 50 g. of carnauba wax in 50 g. of ethylene glycol dimethylether was warmed to 80° C and then 10 drops of  $\text{BF}_3 \cdot \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  were added. A warm solution of 40 g. of 55





in 40 g. of ethylene glycol dimethylether was added with stirring. The mixture was warmed for 10 minutes at 80° C. and then stripped to 160° C. at 1 mm Hg. to remove the solvent. The clear liquid residue solidified to a smooth soft wax, a silicone-carnauba wax co-polymer that melted at 80° to 85° C.

A lipstick was prepared by the procedure of Example 1 and the formulation was 4.0 g. of the above silicone-carnauba wax co-polymer, 0.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C., 0.3 g. of stearic acid, 1.0 g. of isopropyl myristate, and 1.0 g. of D & C Red No. 12. The lipstick was very creamy, marked evenly and was not dull, heavy or greasy. The above lipstick was placed in a 65° C oven for 15 minutes along with a commercial lipstick. The above lipstick remained unchanged while about half of the commercial lipstick melted and the colouring was uneven and the separated liquid remained separated.

### EXAMPLE 3

Lipsticks were prepared by formulating the ingredients as shown in Table I by the procedure of Example 1. The organosilicon block co-polymers were prepared by adding a toluene solution of a hydroxylated dimethylpolysiloxane to a toluene solution of a RSiCl<sub>2</sub> and pyridine with continuous agitation. The solution was then hydrolysed by mixing with a water-isopropanol solution. The organic layer was separated from the aqueous layer and washed neutral. The organic layer was then stripped by reduced pressure to 120° C. thus producing the organosilicon block co-polymer.

TABLE I

#### Formulation 1

- 3.0 g. of an organosilicon block co-polymer consisting of 60 mol per cent of a dimethylpolysiloxane block having an average of 44 silicon atoms per block and 40 mol per cent of a block consisting of octadecylsiloxane units,
- 1.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,
- 0.3 g. of glyceryl monostearate,
- 1.0 g. of isopropyl myristate
- 1.0 g. of D & C Orange No. 5.

#### Formulation 2

- 3.0 g. of an organosilicon block co-polymer consisting of 60 mol per cent of a dimethylpolysiloxane block having an average of 39 silicon atoms per block and 40 mol per cent of octadecylsiloxane units,
- 0.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,
- 0.1 g. of glyceryl monostearate,
- 1.0 g. of isopropyl myristate,
- 1.0 g. of D & C Red No. 20.

#### Formulation 3

- 3.0 g. of an organosilicon block co-polymer consisting of 92 mol per cent of dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 8 mol per cent of blocks consisting of octadecylsiloxane units,
- 0.6 g. of glyceryl monostearate,
- 1.0 g. of D & C Red No. 12.

#### Formulation 4

- 3.0 g. of an organosilicon block co-polymer consisting of 54 mol per cent of dimethyl polysiloxane blocks having an average of 44 silicon atom per block, 46 mol per cent of blocks consisting of 21.75 mol per cent of phenylsiloxane units and 78.25 mol per cent of octadecylsiloxane units,
- 1.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,
- 1.0 g. of a liquid dimethylpolysiloxane having viscosity of 100 cs. at 25° C.,
- 0.5 g. of isopropyl myristate,
- 0.4 g. of cetyl alcohol,
- 1.0 g. of D & C Red No. 7.

## Formulation 5

- 5 3.0 g. of an organosilicon block co-polymer consisting of 75 mol per cent of dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 25 mol per cent of blocks consisting of octadecylsiloxane units, 5  
0.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
0.4 g. of cetyl alcohol,  
1.0 g. of isopropyl myristate  
1.0 g. of D & C Red No 27.

## Formulation 6

- 10 3.0 g. of an organosilicon block co-polymer consisting of 60 mol per cent of dimethylpolysiloxane blocks having an average of 105 silicon atoms per block and 40 mol per cent of blocks consisting of octadecylsiloxane units, 10  
1.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
0.5 g. of isopropyl myristate, 15  
0.4 g. of cetyl alcohol,  
1.0 g. of D & C Red No. 12.

## Formulation 7

- 20 3.0 g. of an organosilicon block co-polymer consisting of 25 mol per cent of dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 75 mol per cent of blocks consisting of octadecylsiloxane units, 20  
3.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
1.5 g. of isopropyl myristate,  
0.3 g. of cetyl alcohol,  
1.0 g. of D & C Red No. 7.

## Formulation 8

- 25 3.0 g. of an organosilicon block co-polymer consisting of 10 mol per cent of dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 90 mol per cent of blocks consisting of octadecylsiloxane units, 25  
2.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
1.0 g. of a liquid dimethylpolysiloxane having a viscosity of 100 cs. at 25° C., 30  
0.3 g. of cetyl alcohol,  
2.0 g. of isopropyl myristate  
1.0 g. of D & C Red No. 12.

## Formulation 9

- 35 3.0 g. of an organosilicon block co-polymer consisting of 60 mol per cent of dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 40 mol per cent of blocks consisting of  $C_{20}H_{41}SiO_{1.5}$ , 35  
1.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
0.3 g. of cetyl alcohol, 40  
0.5 g. of isopropylmyristate,  
0.8 g. of D & C Red No. 7.

## EXAMPLE 4

- 45 A hydrocarbon-silicone co-polymer was prepared by mixing 3 drops of a solution of 1 weight per cent chloroplatinic acid in ethanol and 188.5 g. of an alpha-olefin mixture consisting of alkenes comprising 20 carbon atoms or more and alkanes comprising 20 carbon atoms or more where the alkenes represented about 70 weight per cent of the alpha-olefin mixture. This mixture was heated to 110° C. in a 1 litre three necked flask equipped with a reflux condenser, thermometer and mechanical stirrer. 45  
50 To the heated solution, 30.1 g. of a mixture of toluene and 20.5 g. of a dimethylpolysiloxane having two terminal silicon bonded hydrogen atoms and having an average of 8 silicon atoms per molecule were added dropwise. The addition required 0.5 hours. The mixture was then heated to 145° C. for 24 hours. The mixture was then stripped to 200° C. at 1.0 mm Hg. The product was a waxy solid melting at 48° C. and had an average hydrocarbon radical of 61 carbon atoms per terminal silicon atom. 55

Lipsticks were prepared by the procedure of Example 1 from the above hydrocarbon-silicone copolymer which was very creamy, smooth, had no drag and marked even and well. The formulations were:

- 60 (A) 3.0 g. of the above hydrocarbon-silicone co-polymer 60  
1.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C  
0.5 g. of isopropyl myristate,  
0.5 g. of cetyl alcohol,  
1.0 g. of colour

- (B) 3.00 g. of the above hydrocarbon-silicone co-polymer  
 1.78 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.  
 1.10 g. of isopropyl myristate,  
 0.71 g. of cetyl alcohol  
 0.99 g. of colour.

5

5

## EXAMPLE 5

A hydrocarbon-silicone co-polymer was prepared by melting 124.6 g. of an alpha-olefin mixture consisting of alkenes having 20 carbon atoms or more and alkanes having 20 carbon atoms or more where the alkenes represented about 70 weight per cent of the alpha-olefin mixture. Three drops of a solution of 1 weight per cent chloroplatinic acid in ethanol were added. The mixture was heated to 110° C. To the heated mixture 50.2 g. of the dimethylpolysiloxane mixture of Example 4 was added dropwise at a rate sufficient to maintain the temperature of the mixture at 110° C. The mixture was then heated to 144° C. for 24 hours with stirring. The mixture was then stripped to 210° C. at 1.0 mm Hg. The product was a waxy solid at room temperature with a melting point of 54° C. and had an average hydrocarbon radical of 40 carbon atoms per terminal silicon atom.

10

10

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15

A lipstick having the following formulation was prepared by the procedure of Example 1:

20

- 3.0 g. of the above hydrocarbon-silicone co-polymer,  
 1.0 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
 0.5 g. of cetyl alcohol,  
 1.0 g. of colour.

20

The above lipstick was excellent, very smooth, and even marking.

25

25

## EXAMPLE 6

A hydrocarbon-silicone co-polymer was prepared by mixing 3 drops of a solution of 1 weight per cent chloroplatinic acid in ethanol and 188.5 g. of an alpha-olefin mixture consisting of alkenes and alkanes both comprising 20 or more carbon atoms per molecule where the alkenes represented about 70 weight per cent of the alpha-olefin mixture. This mixture was heated to 110° C. and then tetramethyldihydrogendisiloxane was added at a sufficient rate to maintain the temperature at 110° C. After the addition the mixture was heated at 150° C. for 2 hours. The resulting mixture was then stripped to 180° C. at 1.0 mm Hg. The product was a waxy solid at room temperature and melted at 55° C. and had an average hydrocarbon radical of 61 carbon atoms per silicon atom.

30

30

35

35

A lipstick prepared by the procedure of Example 1 from the above hydrocarbon-silicone co-polymer was creamy even marking and smooth and had the following formulation:

40

- 3.0 g. of the above hydrocarbon-silicone co-polymer,  
 1.5 g. of a liquid dimethylpolysiloxane having a viscosity of 10 cs. at 25° C.,  
 0.4 g. of cetyl alcohol,  
 0.75 g. of isopropyl myristate,  
 1.0 g. of colour,

40

## EXAMPLE 7.

A lipstick was prepared by the procedure of Example 1 the following formulation was used:

45

45

Weight

Per cent.

Ingredient

50

- 20 Microcrystalline wax commercially known as Be square 190/195  
 Amber

50

20 Silicone polymer of repeating units of the formula  $(C_{10}H_{22})CH_3SiO$  having a melting point of 30° C and comprising a very small proportion of  $(CH_3)_2Si_{0.5}$  units

55

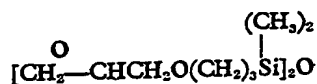
- 5 Cetyl alcohol  
 5 Lanolin  
 25 Pale paraffin oil  
 5 Glyceryl monostearate  
 20 Colour and pigments

55

The lipstick marked evenly and well.

## EXAMPLE 8.

A silicone-carnauba wax co-polymer was prepared by melting 100 g. of Carnauba wax, adding 20 drops of  $\text{BF}_3 \cdot \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  and then 20 g. of



5 The mixture was heated and stirred at 80° to 100° C for 30 minutes and then cooled. 5  
A tough, smooth wax melting at 82° C was obtained.

A lipstick prepared by the procedure of Example 1 and having the following formula marked even:

10 3.0 g. of the above silicone-carnauba wax co-polymer, 10  
3.0 g. of a liquid phenylmethylpolysiloxane having a viscosity of 50 cs. at 25° C.,  
0.5 g. of glyceryl monostearate,  
1.0 g. of colour.

## EXAMPLE 9

15 A chapstick was prepared by the procedure of Example 1 for the preparation of 15  
a lipstick. The chap-stick retained its spreadability at temperatures well below room temperature.

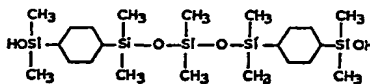
The formulation was:

20 3.0 g. of an organosilicon block co-polymer consisting of 60 mol per cent of 20  
dimethylpolysiloxane blocks having an average of 44 silicon atoms per block and 40 mol per cent of blocks consisting of octadecylsiloxane units,  
1.0 g. of aliquid dimethylpolysiloxane having a viscosity of 100 cs. at 25° C.  
4.5 g. of a liquid phenylmethylpolysiloxane having a viscosity of 50 cs. of 25° C.  
1.0 g. of a partial hydrolysate of distearoxy dimethylsilane,  
1.0 g. of isopropyl myristate 25  
1.5 g. of lanolin  
0.3 g. of cetyl alcohol 25

## EXAMPLE 10

30 An excellent lipstick was prepared by the procedure of Example 1. The lipstick 30  
remained unchanged at 71° C. and was creamy, smooth and marked well. The formulation was:

2.0 g. of



35 2.0 g. of a microcrystalline wax, 35  
2.0 g. of a liquid phenylmethylpolysiloxane having a viscosity of 50 cs. at 25° C.  
1.0 g. of isopropyl myristate,  
1.0 g. of colour.

## EXAMPLE 11

40 A liquid lip colouring composition was prepared when the following ingredients 40  
were thoroughly mixed as in Example 1.

45 The parts are parts by weight. 45  
5 parts of an organosilicon block co-polymer consisting of 65 mol per cent of  
dimethylpolysiloxane blocks having an average of 6 silicon atoms per block  
and 35 mol per cent of blocks consisting of  $\text{C}_{24}\text{H}_{46}\text{SiO}_{1.5}$   
40 parts of a dimethylpolysiloxane having a viscosity of 250 cs. at 25° c. 45  
20 parts of isopropyl myristate,  
10 parts of cetyl alcohol,  
25 parts of colouring agent.

## EXAMPLE 12

50 A lipstick was prepared when the following ingredients were compounded and 50  
moulded by the procedure of Example 1. The parts are parts by weight.

70 parts of an organosilicon block co-polymer consisting of 50 mol per cent of  
dimethylpolysiloxane blocks having an average of 150 silicon atoms per block  
and 50 mol per cent of blocks consisting of  $\text{C}_{20}\text{H}_{33}\text{SiO}_{1.5}$ ,  
10 parts of isopropyl myristate, 50  
20 parts of colouring agent.

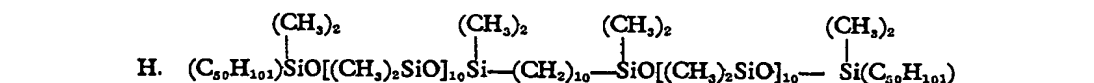
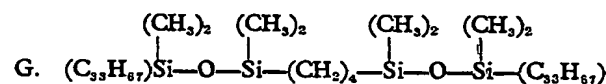
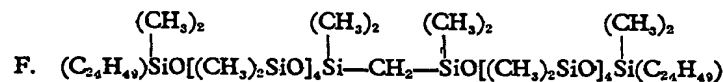
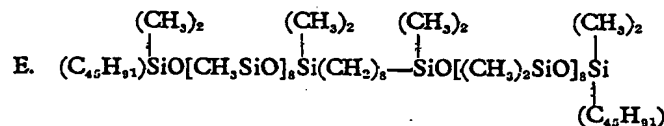
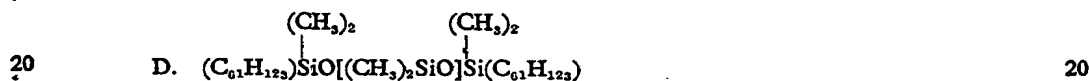
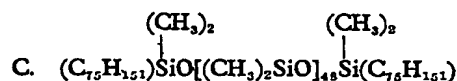
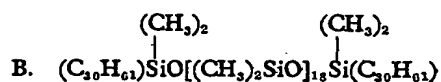
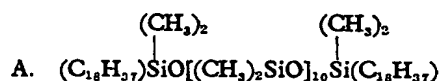
## EXAMPLE 13

A lipstick was prepared when the following ingredients were compounded and moulded by the procedure of Example 1. The parts are parts by weight.

5	30 parts of the organosilicon block co-polymer of Example 3, Formulation 2,	5
	20 parts of beeswax	
	5 parts of liquid paraffin,	
	4 parts of stearyl alcohol,	
	8 parts of butyl stearate,	
10	10 parts of the ester of tetrahydrofurfuryl, alcohol and stearic acid,	10
	5 parts of cocoa butter,	
	12 parts of isopropyl myristate,	
	5 parts of colouring agent	
	1 parts of linalyl cinnamate.	

## EXAMPLE 14

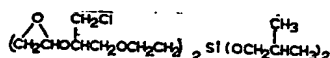
15	When any of the following silicone co-polymers replaced the hydrocarbon-silicone in the lipstick formulation of Example 5, an equivalent lipstick was obtained.	15
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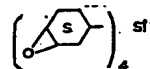
## EXAMPLE 15

When any of the following silicone-carnauba wax co-polymers replace the silicone-carnauba wax co-polymer of Example 1 in the lipstick formulations, equivalent lipsticks were obtained.

30	A. A co-polymer made by reacting 40 weight per cent carnauba wax and 60 weight per cent	30
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B. A co-polymer made by reacting 95 mol per cent of a carnauba wax which is 5 per cent hydrolysed and 5 weight per cent of

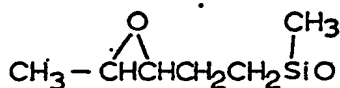


C. A co-polymer made by reacting 50 weight per cent carnauba wax and 50 weight per cent of a co-polymer consisting of 5 mol per cent

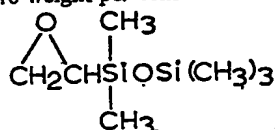


5 units, the remainder being  $(\text{CH}_3)_3\text{SiO}$  and  $(\text{CH}_3)_2\text{SiO}_{0.5}$  units.

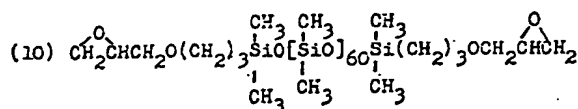
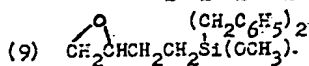
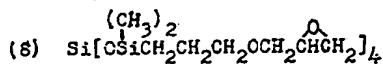
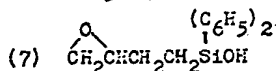
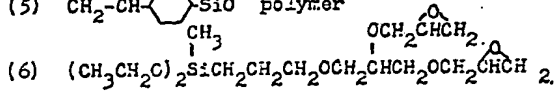
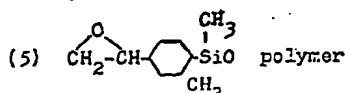
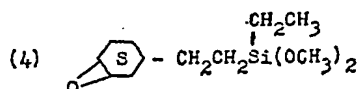
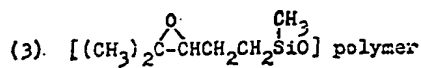
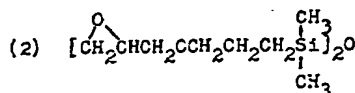
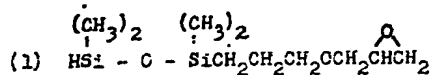
D. A co-polymer made by reacting 45 weight per cent of carnauba wax and 55 weight per cent of a



E. A co-polymer made by reacting 60 weight per cent carnauba wax which is 70 per cent hydrolysed and 40 weight per cent of



F. A co-polymer made by reacting 70 weight per cent of carnauba wax with 30 weight per cent of any one of the following epoxy containing organosilicon compounds



## EXAMPLE 16

When any of the following siloxane co-polymers replaced the siloxane co-polymer of Example 7 an equivalent lipstick was obtained.

5 (A) A co-polymer consisting of 1 mol per cent of  $(\text{CH}_3)_3\text{SiO}_{0.5}$  units, 45 mol per cent of  $(\text{CH}_3)_2\text{SiO}$  units and 54 mol per cent of  $(\text{C}_{20}\text{H}_{41})(\text{CH}_3)\text{SiO}$  units. 5

(B) A co-polymer consisting of 0.5 mol per cent of  $(\text{CH}_3)_3\text{SiO}_{0.5}$  units, 80 mol per cent of  $(\text{CH}_3)_2\text{SiO}$  units and 19.5 mol per cent of  $(\text{C}_{22}\text{H}_{45})(\text{CH}_3)\text{SiO}$  units.

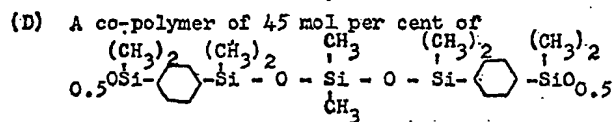
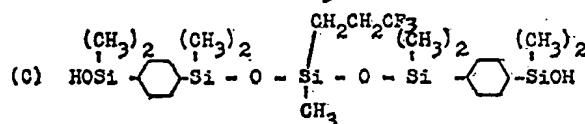
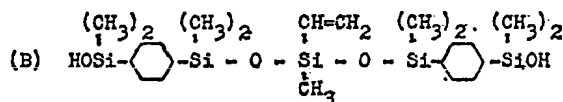
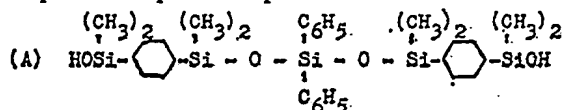
10 (C) A co-polymer consisting of 2 mol per cent of  $(\text{CH}_3)_3\text{SiO}_{0.5}$  units, 5 mol per cent of  $(\text{CH}_3)_2\text{SiO}$  units and 93 mol per cent of  $(\text{C}_{22}\text{H}_{45})(\text{CH}_3)\text{SiO}$  units.

(D) A co-polymer consisting of 2 mol per cent of  $(\text{CH}_3)_3\text{SiO}_{0.5}$  units, 10 mol per cent of  $(\text{CH}_3)_2\text{SiO}_{1-c}$  units where c is 1 or 2 and in the siloxane has an average

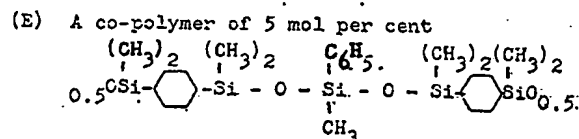
value of 1.98 and 88 mol per cent of  $(\text{C}_{18}\text{H}_{37})(\text{CH}_3)\text{SiO}$  units.

## EXAMPLE 17

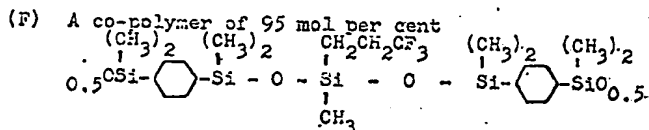
15 When any of the following silphenylene co-polymers replaced the silphenylene co-polymer of Example 10 an equivalent lipstick was obtained. 15



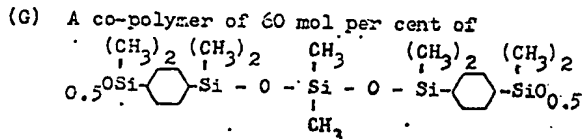
and 55 mol per cent of  $\text{C}_{18}\text{H}_{37}\text{SiO}_{1.5}$



and 95 mol per cent of  $\text{C}_{22}\text{H}_{45}\text{SiO}_{1.5}$



and 5 mol per cent of  $\text{C}_{16}\text{H}_{33}\text{SiO}_{1.5}$



and 40 mol per cent of  $\text{C}_{24}\text{H}_{49}\text{SiO}_{1.5}$

## EXAMPLE 18

Lip colouring compositions were obtained when the following ingredients were thoroughly mixed. Parts are parts by weight.

5	(A) 30 parts of the silphenylene co-polymer of Example 10	5
	2 parts of a liquid diethylpolysiloxane having a viscosity of 500 cs. at 25° C.	
	30 parts of isopropyl myristate	
	5 parts of lanolin	
	5 parts of cetyl alcohol	
10	13 parts of glyceryl monostearate	10
	15 parts of colouring agent.	
15	(B) 70 parts of the silicone-carnauba wax co-polymer of Example 8	15
	5 parts of a liquid methylpropylpolysiloxane having a viscosity of 5 cs. at 25° C.	
	2 parts cetyl alcohol	
	23 parts of colouring agent.	
20	(C) 20 parts of the hydrocarbon-silicone co-polymer of Example 5	20
	30 parts of a liquid dimethylpolysiloxane having a viscosity of 20 cs. at 25° C.	
	20 parts of a liquid diethylpolysiloxane having a viscosity of 80 cs. at 25° C.	
	15 parts of isopropyl myristate	
	10 parts of D & C Red No. 25.	
25	(D) 40 parts of the organosilicon block co-polymer of Example 3, Formulation 9	25
	2 parts of a liquid phenylmethylpolysiloxane having a viscosity of 200 cs. at 25° C.	
	30 parts of propylene glycol monostearate	
	10 parts of lanolin	
	10 parts of lecithin	
30	8 parts of D & C Orange No. 13.	30

## EXAMPLE 19

Lip colouring compositions were obtained when the following ingredients were thoroughly mixed. Parts are parts by weight.

35	(A) 10 parts of the silicone co-polymer of Example 7	35
	30 parts of ceresine,	
	5 parts of cetyl alcohol	
	10 parts of diethylsebacate,	
	11 parts of N,N-dimethylacetamide,	
	12 parts of isopropyl myristate	
	20 parts of colour	
45	2 parts of flavour.	45
	(B) 7.5 parts of the organosilicon block co-polymer of Example 3, Formulation 6,	
	2.5 parts of carnauba wax,	
	40.0 parts of beeswax,	
	8.0 parts of a liquid dimethylpolysiloxane having a viscosity of 50 cs. at 25° C.	
	2.0 parts of ethyl ricinoleate acetate,	
	10.0 parts of ethyl stearate,	
55	10.0 parts of cocoa butter	55
	10.0 parts of colour	
	10.0 parts of titanium dioxide,	
	(C) 35 parts of the silicone-carnauba wax co-polymer of Example 2,	
	5 parts of beeswax,	
55	20 parts of isopropyl myristate,	55
	10 parts of lanolin	
	5 parts of cetyl alcohol,	
55	25 parts of colour.	55

## WHAT WE CLAIM IS:—

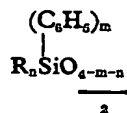
1. A cosmetic composition comprising a cosmetic solvent, a colouring agent and



a wax of which at least 15 weight per cent is a silicone wax selected from (A) organo-silicon block co-polymers consisting essentially of

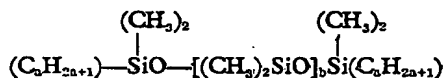
- 5 (1) 5 to 94 mol per cent of blocks of polysiloxane of the general formula  

$$\{(\text{CH}_3)_2\text{SiO}\}_x[(\text{C}_6\text{H}_5)_2(\text{CH}_2\text{SiO})_y[(\text{CH}_3)_2\text{SiO}_{1.5}]_z\}_n$$
 in which the sum of  $x+y+z$  has an average value of from 6 to 150, and  $y$  and  $z$  each have a value of up to 5 mol per cent of the sum of  $x+y+z$ , and  
 (2) 6 to 95 mol per cent of blocks of the average general formula



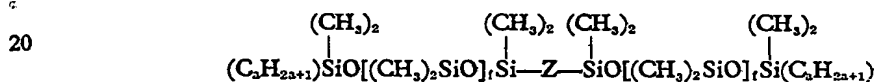
- 10 in which R is an alkyl radical containing from 16 to 26 carbon atoms,  $m$  has a value of up to 0.25,  $n$  has a value of from 0.75 to 1.05 and the sum of  $m+n$  has a value of from 0.95 to 1.05,

(B) hydrocarbon-silicone co-polymers consisting essentially of copolymers selected from (3) compounds having an average general formula



- 15 in which  $a$  has an average value from 18 to 75 inclusive,  $b$  has an average value from 0 to 48 inclusive, and there being at least 3 carbon atoms calculated on the total number of carbon atoms in the  $\text{C}_b\text{H}_{2b+1}$  radicals per silicon atom calculated on the total number of silicon atoms per molecule, and

(4) compounds having an average general formula



in which  $a$  is as defined above,  $f$  has an average value from 0 to 10 inclusive, and Z is a divalent hydrocarbon radical consisting essentially of  $-\text{CH}_2-$  groups and containing from 1 to 10 carbon atoms,

- 25 (C) silicone-carnauba wax co-polymers consisting essentially of a silicone portion bonded to a carnauba wax portion through an organic radical attached to a silicon atom through a silicon-carbon bond, said organic radical linking the silicone portion and the carnauba wax portion predominantly by ether linkages, from 40 to 95 inclusive weight per cent of said co-polymer constituting the carnauba wax portion

(D) siloxane co-polymers consisting essentially of

- 30 (5) siloxane units of the formula  $(\text{CH}_3)_3\text{SiO}_{0.5}$ ,  
 (6) siloxane units of the general formula  $(\text{CH}_3)_e\text{SiO}_{4-e}$

in which  $e$  is 0, 1 or 2 and in the siloxane has an average value from 1.98 to 2.00 inclusive, and

(7) siloxane units of the general formula

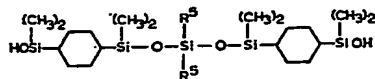


in which R is an alkyl radical containing from 16 to 26 inclusive carbon atoms,  $c$  and  $d$  are each 0, 1 or 2 and in the siloxane have an average value from 0.95 to 1.05 inclusive, and the sum of  $c+d$  has an average value from 1.98 to 2.00 inclusive,

- 40 there being an average of up to 2.05 inclusive units of (5) per molecule and there being an average of at least one unit of (7) per 15 units of (6), and

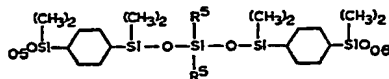
(E) silphenylene co-polymers selected from

(8) compounds of the general formula



in which  $R^5$  is a methyl, phenyl, vinyl or tri-fluoropropyl radical and,

(9) polymers consisting essentially of from 5 to 95 mol per cent of units of the general formula



in which  $R^5$  is as defined above and from 5 to 95 mol per cent of units of the general formula  $RSiO_{1.5}$  in which R is as defined above.

2. A cosmetic composition of claim 1 in which the sum of  $x+y+z$  is from 15 to 100.

3. A cosmetic composition as claimed in claim 1 or 2 in which R is an alkyl radical comprising from 18 to 26 carbon atoms.

4. A cosmetic composition as claimed in any of the preceding claims in which

(1) is present in an amount from 20 to 90 mol per cent and

(2) is present in an amount from 10 to 80 mol per cent.

5. A cosmetic composition as claimed in claim 1 in which in (B) a has an average value from 22 to 50 inclusive, b has an average value from 2 to 30 inclusive and there are at least 5 carbon atoms calculated on the total number of carbon atoms in the  $C_nH_{2n+1}$  radicals per silicon atom calculated on the total number of silicon atoms per molecule.

6. A cosmetic composition as claimed in claim 1 in which in (C) the co-polymer is from 60 to 85 inclusive weight per cent carnauba wax portion.

7. A cosmetic composition as claimed in claim 1 in which in copolymer (D) R is an alkyl radical containing from 20 to 26 carbon atoms per radical and there is at least one unit of (7) for each 5 units of (6).

8. A cosmetic composition as claimed in claim 1 in which  $R^5$  is a methyl radical.

9. A lip colouring composition comprising 10 to 70 weight per cent of a cosmetic solvent, 2 to 25 weight per cent of a colouring agent, and 2 to 70 weight per cent of a wax of which at least 15 weight per cent is a silicone wax as specified in any of the preceding claims.

10. A lip colouring composition as claimed in claim 9 in which the wax is present in an amount from 20 to 60 weight per cent.

11. A lip colouring composition comprising 2 to 50 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl and phenyl radicals, 2 to 50 weight per cent of another cosmetic solvent, 2 to 25 weight per cent of a colouring agent and 2 to 70 weight per cent of a wax of which at least 15 weight per cent is a silicone wax as specified in any of the preceding claims 1 to 8.

12. A lip colouring composition as claimed in claim 11 in which the liquid diorganopolysiloxane is present in an amount of from 8 to 40 weight per cent.

13. A lip colouring composition comprising 2 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl and phenyl radicals, 1 to 10 weight per cent of cetyl alcohol (also a cosmetic solvent), 2 to 40 weight per cent of another cosmetic solvent, 2 to 20 weight per cent of a colouring agent, and 2 to 70 weight per cent of a wax of which at least 25 weight per cent is a silicone wax as specified in any of the preceding claims 1 to 8.

14. A lip colouring composition comprising 2 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from, methyl, ethyl, propyl and phenyl radicals, 2 to 25 weight per cent of isopropyl myristate (also a cosmetic solvent), 2 to 40 weight per cent of another cosmetic solvent, 2 to 20 weight per cent of a colouring agent, and 2 to 70 per cent of a wax of which at least 25 weight per cent is a silicone wax as specified in any of the preceding claims 1 to 8.

15. A lip colouring composition as claimed in any preceding claim 11 to 14 in which the liquid diorgano-polysiloxane is a dimethylpolysiloxane liquid,

16. A lipstick comprising 8 to 40 weight per cent of a liquid diorganopolysiloxane (a cosmetic solvent) in which the organic radicals are selected from methyl, ethyl, propyl and phenyl radicals 1 to 25 weight per cent of another cosmetic solvent, 2 to

20 weight per cent of a colouring agent, and 20 to 60 weight per cent of a silicone wax as specified in any one of the preceding claims 1 to 8.

17. A lipstick as claimed in claim 16 in which the liquid diorganopolysiloxane is a dimethylpolysiloxane liquid and/or a phenylmethylsiloxane liquid.

5 18. A cosmetic composition as claimed in claim 1 substantially as described with reference to any one of the Examples. 5

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